

October 18 - October 24, 2001

The Terra spacecraft is in nominal mode. All instruments are in nominal science mode.

Commands were issued from the EOS Operations Center on October 19 and 20 to execute rate changes to place CERES at the desired scan rate in the correct mode. On Oct. 19, a CERES Raw Command was issued to set the scan rate to 1.0 deg/sec. On Oct. 20 another Raw Command was issued to set the scan rate to 0.5 deg/sec. This is a special CERES calibration activity for the Earth Radiation Budget Experiment.

A MODIS Direct Broadcast (DB) switch from the Q-channel to the I-channel (and back to the Q-channel) was successfully performed over the NASA Goddard Direct Broadcast site, in preparation for future tests of the ASTER Direct Downlink (DDL) over the Polar Ground Stations. DDL mode will place the ASTER data on the Q-channel where the MODIS Direct Broadcast data are nominally transmitted. This test was performed to demonstrate successful transitions between channels, and to verify that the dropout of MODIS data is only momentary, and to demonstrate the Q- to I-channel transition notification mechanisms.

A final meeting was held on Tuesday, October 23, to discuss the S-band Transponder (SBT) spike and Tracking and Data Relay Satellite System (TDRSS) non-acquisition issue. The anomaly team has concluded that an autonomous flight software refresh occurring on the transponder in combination with the turn-on command (issued from the Absolute Time Command load) caused the TDRSS non-acquisition anomaly by blocking the transponder command from executing.

The telemetry spikes that were observed starting on Day 216 have been determined to have been present since activation. These spikes are related to the transponder "refresh cycle" which occurs when the transponder has not received a forward RF signal for 10 minutes.

The timing issues involved (i.e., frequency of refresh, duration of refresh, and command execute time) indicate that this event will not occur frequently. However, it can be avoided by issuing the transponder command from the ATC twice (with a 1-second interval in between) at all times in nominal acquisition. There are no hardware issues or command volume overhead limits associated with this approach, and the Flight Operations Team is evaluating this proposed solution. Key members of the anomaly team are writing close out memos that will be re-worked and assimilated into a final anomaly report by the Flight Ops Team Communications Subsystem Lead Engineer.

TDRSS contacts continue to be pulled from Terra on short notice, resulting in the need for rescheduling in order to acquire all data from the Solid State Recorder.

Several MDA2BITE trips (High Gain Antenna Motor Drive Assembly opto-coupler Single Event Upsets) occurred during this reporting period with no data loss.

Plans

Next Drag make-up Maneuver on October 30

- Next MODIS Calibration Roll Maneuver on November 5
 - Continued certification testing with commercial Polar Ground Stations
 - Testing of Direct Downlink (DDL) capability over Norway Ground Station to acquire data for ASTER team
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